Research Statement

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My Research Approach

I am a young economist specialized in public economics. I use empirical microeconomic techniques to help tackle the many important questions policy makers face, such as the welfare impact of the timing of taxation, households' efficiency, behavioral reactions to tax changes, intergenerational income mobility, or the impact of child tax breaks on fertility decisions.
My recent empirical research uses a large comprehensive administrative dataset,[1] aimed at guiding the public debate on these issues. As a researcher, I am passionate about producing relevant high-quality replicable analysis, thus my analysis is conducted using the open-source programming language Python, and I make my code publicly available. When data I used are not publicly available for confidentiality reasons, I have an independent certification agency that asses the replicability of my code.[2]

My Background

I have been passionate about economics since the very beginning of my bachelor's. My favorite topics were Decision Theory and Behavioral Economics, I did two research internships on these subjects in 2012 and 2013. During my Master in Public Economics in 2014, I had a course on Tax Microsimulation with Mahdi Benjelloul who created an open-source microsimulation software written in Python called OpenFisca.[3] As I was very interested in debates concerning the tax-benefit system and attracted by programming, I did a three months internship at ETALAB.[4] There I worked with computer scientists, and I acquired many fundamentals of programming skills while helping to develop OpenFisca.
I then started a PhD in Economics where I used only open-source software with Python as my main language. I also worked for IDEP[5] where I co-wrote two policy briefs, the first one on a reform concerning children benefits in France, and the second one concerning a change in a tax instrument that is similar to the EITC.
As I followed the evolution of the Python language and the associated scientific packages that are driven by the data science community, I have been increasingly interested in many areas of data science, including containerization, tools to handle large databases (Hadoop, Spark), data scraping, natural language processing, and Machine Learning.
I am also very concerned about the replicability crisis in economics. To improve the situation, I got involved with the cascad.tech certification agency held in HEC Paris, first by having it to certify my research, then by working as a part-time consultant for the agency.

My Dissertation

My PhD thesis focused mainly on household taxation issues.

My job market paper is titled "Rich Households' Taxable Income: A French Natural Experiment to Disentangle Income and Substitution Effects". This paper studies how the top 10% household reacts to a change in the tax schedule. The tax reform we are interested in is a decrease in the child tax break ceiling that happened between 2011 and 2013.[6] In this quasi-natural experiment, the treatment is not –as in most studies– based solely on a position in the income distribution, but is based on both taxable income and family composition. This specificity of the reform allows us to identify the behavioral reactions in a triple-difference setting. The reform also impact households in two different manners: i) households that were before the reform concerned by the maximum child tax break, face a lump sum decrease of their disposable income, ii) households that were earning too little to be concerned by the maximum child tax break, are impacted by an increase in their marginal tax rate. This specificity also allows disentangling the income and substitution effects. Piketty (1999) noted that both a change in the child tax break can be assessed through a triple-difference setting, and that it can be used to disentangle the income and the substitution effects. However, limitations of data available at the time only allowed for an aggregated analysis. I use a novel dataset that has not been previously used for tax analysis that contains over 2 millions households tax returns. I find large both substitution and income effects. These are linked to a violation of the common trend assumption between groups. For administrative reasons, I have lost in May 2019 the access to the data, and I have not been able to investigate why and where these differences in trends come from. I have regained access to this data in January 2020, and I can continue my analysis.

The first chapter of my thesis is joint with my PhD advisors, studies the impact of changes in the frequency at which an income tax is assessed. It relies on an idea proposed by Vickrey (1939) that shows that changing

[1] The Échantilon Démographique Permanent, that contains over 50 GB of data on a population greater than 6 million French individuals.

[2] I have been the first researcher to certify its research based on private administrative data by an independent certification agency https://www.cascad.tech/, see Pérignon et al. (2019).

[3] https://openfisca.org/en/

[4] A public entity which goal is to open administrative data and code.

[5] Institut d'économie publique.

[6] The maximum tax break per child has been lowered from 2336 euros to 1500 euros.

the period at which a tax is assessed and paid, changes the welfare of households. Our contribution relies on the opposition of two effects when the frequency of the tax is increased. The first effect is an insurance effect implied by the convexity of the tax (Varian, 1980), that smooth taxpayers' consumption when they have varying income. The second effect is an increase in tax liability, indeed if a tax is convex, due to Jensen's inequality, agents with varying income will have a higher tax liability.
We then show that if we compensate for the loss implied by the Jensen's inequality, an increase in the frequency of the tax is Pareto improving. We also compare different tax-systems with respect to the timing of the tax including the one proposed by Vickrey.
We then run a microsimulation for France using OpenFisca to evaluate the impact of the change from an annual to a monthly tax-system. We show that increasing the frequency of the tax would imply large welfare gains that would be directed towards the bottom of the distribution, increasing the frequency with compensation would imply greater gains. But both those solutions are dominated by the one proposed by Vickrey which is based on averaging the income tax over a given period.

My second chapter, joint with O. Bargain, D. Echevin & N. Moreau, tests household efficiency by looking at the optimal allocation of children between cohabitants' tax returns. We show that a large part of households does not respect the Pareto efficiency. We show that inertia is a strong determinant, as couples tend not change their allocation from one year to another, even when a change is optimal. We also find that couples that do not optimize tend to separate more the year after, while optimizing couples tend to get married more, which suggests that fiscal optimization is a potential proxy for collaboration within couples.

Work in Progress

In collaboration with Elliott Ash and Malka Guillot, I am working on intergenerational mobility and its links with populism in France. The first step of this project is very close to the one of Chetty et al. (2014), and aims at producing the first reliable metrics of intergenerational mobility for France. The second part of the project will look at links between intergenerational mobility and other metrics, including links with populist voting and the provision of public goods.

Future Work

In the years to come, I plan to study other natural experiments or quasi-experiments linked with taxation. One project would be to assess the impact of child tax breaks on fertility.
I also am very interested in the labor courts' decisions. French courts' decisions will be put in open access during the first quarter of 2020. I would like to analyze this new dataset through Natural Language Processing to answer questions such as "Does a higher unemployment rate imply better outcomes in court for employees?".
I also want to investigate the links between econometrics and machine learning, in an epistemological and theoretical perspective in the spirit of the one developed by Pearl and Mackenzie (2018). Besides, I want to study how Machine Learning algorithms developed in the field of computer science can be used in the empirical economic field as recently explored by Wager and Athey (2018) or Chernozhukov et al. (2018).
To conclude, as some consider that the economic research faces a replication crisis, I want to investigate the reproducibility in the empirical economics literature, including how sensitive different studies are sensible to data selection, or variable selection. Furthermore, I want to help to elaborate on the best practices such that economics research becomes easily replicable and testable.

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